

SERVICE MANUAL

COMPACT DISC PLAYER

BASIC CD MECHANISM : DA23L

- This Service Manual is the "Revision Publishing" and replaces "Simple Manual"
XP-V714(AEZ, AHC, AK) / XP-V716C(Y), (S/M Code No. 09-003-423-5T3).

SPECIFICATIONS <714AEZ, 714AK, 716CY>

Tracking system: 3-beam laser
Laser pickup: Semiconductor laser
D/A conversion: 4-times oversampling digital filter + 1-bit DAC
Frequency response: 20 - 20,000 Hz
Output: PHONES / LINE OUT jack (stereo mini-jack)
Maximum output: 10 mW + 10 mW (EIAJ 16 ohms at 1 kHz)
500 mV (47 kohms at 1 kHz)
Power supply: DC 3 V using two LR6 (size AA) alkaline batteries
DC 2.4 V using two commercially available (Ni-Cd 1.2 V 700 mAh) rechargeable batteries<716CY>
DC 2.4 V using two supplied (Ni-Cd 1.2 V 700 mAh) rechargeable batteries<714AK, 714AEZ>
AC house current using an optional AC adaptor<716CY>
AC house current using the supplied AC adaptor<714AK, 714AEZ>

Dimensions: 127.9 (W) x 28.2 (H) x 130.6 (D) mm
(5 $\frac{1}{8}$ x 1 $\frac{1}{8}$ x 5 $\frac{1}{4}$ in.)
Weight: Approx. 204.6 g (7.2 oz.) excluding batteries
AC adaptor AC-D603: Rated voltage
<714AEZ, 714AK> AC 230 V, 50 Hz

Car audio cassette adaptor CAP-6<V716C>
Frequency range: 50 - 20,000 Hz
Cord Length: 1.5 m (4 ft 11 in.)
Dimensions: 102.4 (W) X 12.1 (H) X 63.8 (D) mm
(4 $\frac{1}{8}$ x $\frac{1}{2}$ x 2 $\frac{5}{8}$ in.)
Weight: Approx. 41 g (1.4 oz.)

Car battery adaptor DC-602<716C>
Input voltage: DC 12 V / 24 V
Output voltage: DC 6 V 300 mA
Cord length: 1.5 m (4 ft 11 in.)
Weight: Approx. 53 g (1.9 oz.)

• Design and specifications are subject to change without notice.

SPECIFICATIONS <714AHC>

Tracking system: 3-beam laser
Laser pickup: Semiconductor laser
D/A conversion: 4-times oversampling digital filter + 1-bit DAC
Frequency response: 20 - 20,000 Hz
Output: PHONES / LINE OUT jack (stereo mini-jack)
DIGITAL OUT jack (optical)
Maximum output: 12 mW + 12 mW (EIAJ 16 ohms at 1 kHz)
500 mV (47 kohms at 1 kHz)
Power supply: DC 3 V using two LR6 (size AA) alkaline batteries
DC 2.4 V using two supplied rechargeable batteries (Ni-Cd 1.2 V 700 mAh)
AC house current using the supplied AC adaptor
Dimensions: 127.9 (W) x 28.2 (H) x 130.6 (D) mm
(5 $\frac{1}{8}$ x 1 $\frac{1}{8}$ x 5 $\frac{1}{4}$ in.)
Weight: Approx. 204.6 g (7.2 oz.) excluding batteries
AC adaptor AC-D603: Rated voltage
220 V AC, 50 Hz

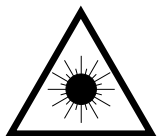
• Design and specifications are subject to change without notice.

PROTECTION OF EYES FROM LASER BEAM DURING SERVICING

This set employs laser. Therefore, be sure to follow carefully the instructions below when servicing.

WARNING!

WHEN SERVICING, DO NOT APPROACH THE LASER EXIT WITH THE EYE TOO CLOSELY. IN CASE IT IS NECESSARY TO CONFIRM LASER BEAM EMISSION. BE SURE TO OBSERVE FROM A DISTANCE OF MORE THAN 30cm FROM THE SURFACE OF THE OBJECTIVE LENS ON THE OPTICAL PICK-UP BLOCK.



- Caution: Invisible laser radiation when open and interlocks defeated avoid exposure to beam.
- Advarsel: Usynlig laserstråling ved åbning, når sikkerhedsafbrydere er ude af funktion. Undgå udsættelse for stråling.

VAROITUS!

Laiteen Käyttäminen muulla kuin tässä käyttöohjeessa mainitulla tavalla saattaa altistaa käyttäjän turvallisuusluokan 1 ylitäivälle näkymättömälle lasersäteilylle.

WARNING!

Om apparaten används på annat sätt än vad som specificeras i denna bruksanvisning, kan användaren utsättas för osynlig laserstrålning, som överskrider gränsen för laserklass 1.

CAUTION

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

ATTENTION

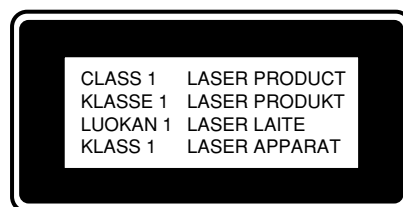
L'utilisation de commandes, réglages ou procédures autres que ceux spécifiés peut entraîner une dangereuse exposition aux radiations.

ADVARSEL!

Usynlig laserstråling ved åbning, når sikkerhedsafbrydere er ude af funktion. Undgå udsættelse for stråling.

This Compact Disc player is classified as a CLASS 1 LASER product.

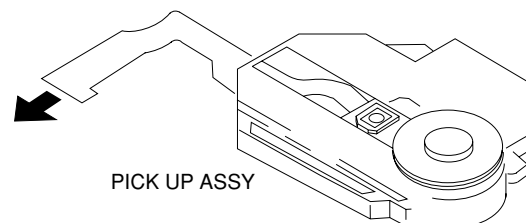
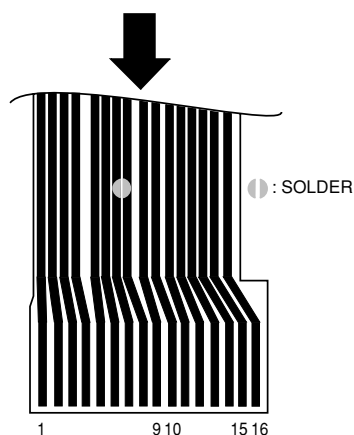
The CLASS 1 LASER PRODUCT label is located on the rear exterior.



Precaution to replace Optical block (SF-P200)

Body or clothes electrostatic potential could ruin laser diode in the optical block. Be sure ground body and workbench, and use care the clothes do not touch the diode.

- 1) After the connection, remove solder shown in the right figure.



ELECTRICAL MAIN PARTS LIST

REF. NO.	PART NO.	KANRI NO.	DESCRIPTION	REF. NO.	PART NO.	KANRI NO.	DESCRIPTION
IC				C410	87-012-286-080		CAP, U 0.01-25
	87-A21-448-040		C-IC, BH6554FV	C411	87-010-831-080		C-CAP, U, 0.1-16F
	8A-HCH-602-010		C-IC, MN101C439-AD<714AHC>	C412	87-016-558-080		C-CAP, TN 47-6.3 F93 B
	8A-HC4-611-010		C-IC, MN101C439AA<EXCEPT 714AHC>	C413	87-010-831-080		C-CAP, U, 0.1-16F
	87-A21-453-040		C-IC, RS-351-38KHZ<716C>	C414	87-012-188-080		C-CAP, U 47P-50 CH<714AHC>
	87-A21-446-010		C-IC, MN662782RPT1	C415	87-010-831-080		C-CAP, U, 0.1-16F
	87-A21-140-040		C-IC, MSM51V17400D	C417	87-012-188-080		C-CAP, U 47P-50 CH
	87-A21-578-040		C-IC, AN8838NSB	C421	87-010-831-080		C-CAP, U, 0.1-16F
	87-A21-543-040		IC, NJU7012	C422	87-010-831-080		C-CAP, U, 0.1-16F
	87-A21-449-040		C-IC, AN8746SA	C423	87-010-831-080		C-CAP, U, 0.1-16F
	87-A21-085-040		C-IC, TA2120FN	C451	87-010-831-080		C-CAP, U, 0.1-16F
	87-A21-523-040		C-IC, SM8142BD	C501	87-016-429-080		C-CAP, E 100-4 5.5N
	87-A20-582-010		IC, GP1F31TJ<714AHC>	C502	87-010-831-080		C-CAP, U, 0.1-16F
				C504	87-010-831-080		C-CAP, U, 0.1-16F
				C505	87-A11-228-080		C-CAP, U 0.027-25 K B
TRANSISTOR				C506	87-012-199-080		CAP 220P
	87-026-608-080		C-TR, DTC 123 JK	C507	87-012-193-080		C-CAP, U 82P-50 CH
	87-A30-075-080		C-TR, 2SA1235F	C508	87-012-193-080		C-CAP, U 82P-50 CH
	89-211-323-080		C-TR, 2SB1132R	C509	87-012-273-080		C-CAP, U 820P-50 B
	89-416-643-080		C-TR, 2SD1664R	C510	87-016-429-080		C-CAP, E 100-4 5.5N
	87-A30-076-080		C-TR, 2SC3052F	C512	87-016-429-080		C-CAP, E 100-4 5.5N
	89-113-695-680		C-TR, 2SA1369G/H	C514	87-A11-228-080		C-CAP, U 0.027-25 K B
	87-A30-278-040		C-FET, 2SK2980	C515	87-A11-228-080		C-CAP, U 0.027-25 K B
	87-026-350-080		C-TR, DTC114TU	C516	87-A10-260-080		C-CAP, U 0.1-16 K B
	87-A30-237-080		C-TR, UMG5N	C518	87-012-176-080		C-CAP, U 15P-50
	87-A30-282-040		C-TR, DTA114TKA	C519	87-012-176-080		C-CAP, U 15P-50
	87-026-239-080		TR, DTC114TK (0.2W)	C520	87-016-426-080		C-CAP, E 47-4 5.5N
				C521	87-012-274-080		CHIP CAP, U 1000P-50B
				C530	87-A10-047-080		C-CAP, U 1-10 Z F
				C601	87-016-430-080		C-CAP, E 100-6.3 5.5N
DIODE				C602	87-012-286-080		CAP, U 0.01-25
	87-A40-270-080		C-DIODE, MC2838	C603	87-012-286-080		C-CAP, U 0.01-25
	87-017-520-080		C-DIODE, SFPB52	C701	87-016-558-080		C-CAP, TN47-6.3F93B
	87-A40-570-080		C-ZENER, UHZ10B	C702	87-012-271-080		C-CAP, U 560P-50 CH
	87-A40-590-040		C-DIODE, HRW0202A	C703	87-012-271-080		C-CAP, U 560P-50 CH
	87-017-366-080		C-DIODE, DAN202U<716C>	C706	87-010-831-080		C-CAP, U 0.1-16F
	84-XMC-624-080		C-DIODE, 1SS250	C707	87-A10-047-080		C-CAP, U 1-10 Z F
				C708	87-A10-047-080		C-CAP, U 1-10 Z F
				C709	87-A10-047-080		C-CAP, U 1-10 Z F
				C710	87-016-561-080		C-CAP, E 10-6.3 MF
MAIN C.B				C711	87-A11-241-080		C-CAP, TN 22-6.3 M F93 A
C202	87-016-422-080		C-CAP, E 22-6.3	C712	87-A10-353-080		C-CAP, U0.22-10KB
C203	87-012-286-080		CAP, U 0.01-25	C713	87-010-831-080		C-CAP, U, 0.1-16F
C204	87-016-429-080		C-CAP, E 100-4 5.5N	C714	87-A11-062-080		C-CAP, S 2.2-16 Z F
C205	87-010-805-080		C-CAP, S 1-16 Z F	C715	87-016-561-080		C-CAP, E 10-6.3 MF
C206	87-012-286-080		C-CAP, U 0.01-25	C716	87-010-831-080		C-CAP, U, 0.1-16F
C207	83-HC3-635-080		C-CAP, E 220-6.3 WF	C717	87-010-831-080		C-CAP, U, 0.1-16F
C208	87-016-426-080		C-CAP, E 47-4 5.5N	C718	87-016-431-080		C-CAP, E 220-4 5.5N
C209	87-010-831-080		C-CAP, U, 0.1-16F	C719	87-016-431-080		C-CAP, E 220-4 5.5N
C210	87-A10-047-080		C-CAP, U 1-10 Z F	C720	87-012-274-080		CHIP CAP, U 1000P-50B
C211	87-010-787-080		CAP, U 0.022-25	C721	87-012-274-080		CHIP CAP, U 1000P-50B
C212	87-012-267-080		C-CAP, U 270P-50 B	CN201	87-A61-147-080		C-CONN, 7P V ZH-SM3
C213	87-010-805-080		C-CAP, S 1-16 Z F	CN301	87-A60-792-080		C-CONN, 30P V 30FLT-SM1TB
C303	87-010-831-080		C-CAP, U, 0.1-16F	CN501	87-009-214-080		C-CONN, 16P 52207
C304	87-010-831-080		C-CAP, U, 0.1-16F	CN601	87-009-411-010		CONN, 6P ZH V
C305	87-012-286-080		CAP, U 0.01-25	FC301	8A-HC4-631-010		FF-CABLE, 30P 0.5MM
C306	87-012-286-080		CAP, U 0.01-25	J701	85-HC5-616-010		JACK, 3.5 ST W/R GRN<716C>
C307	87-012-286-080		CAP, U 0.01-25	J701	87-A60-682-010		JACK, 3.5 ST 7P<714>
C309	87-A11-241-080		C-CAP, TN 22-6.3 M F93A	L201	87-A50-355-080		C-COIL, 330UH LQH3C
C361	87-A11-241-080		C-CAP, TN 22-6.3 M F93 A<716C>	L202	87-A50-330-080		C-COIL, 100UH-D75C
C362	87-012-286-080		C-CAP, U 0.01-25<716C>	L203	87-A50-355-080		C-COIL, 330UH LQH3C
C363	87-012-195-080		C-CAP, U 100P-50<716C>	L302	87-A50-367-080		C-COIL, 10UH LQG21F
C383	87-A10-260-080		C-CAP, U 0.1-16 K B<714AHC>	L401	87-A50-367-080		C-COIL, 10UH LQG21F
C401	87-016-429-080		C-CAP, E 100-4 5.5N	L402	87-A50-012-080		C-COIL, 100UH LQH3C
C403	87-016-558-080		C-CAP, TN 47-6.3 F93 B	L501	87-A50-117-080		C-COIL, 10UH LQH3C
C405	87-A10-260-080		C-CAP, U 0.1-16 K B	L502	87-A50-367-080		C-COIL, 10UH LQG21F
C406	87-012-271-080		C-CAP, U 560P-50 KB<714AHC>	R361	87-A50-367-080		C-COIL, 10UH LQG21F<716C>
C406	87-012-273-080		C-CAP, U 820P-50 <EXCEPT 714AHC>	S301	87-A90-493-080		C-SW, SL 1-1-2 SSSS81<714AHC>
C407	87-010-787-080		CAP, U 0.022-25	S302	87-A90-494-080		C-SW, SL 1-1-3 SSSS81
C408	87-A10-353-080		C-CAP, U0.22-10KB	S303	87-A90-494-080		C-SW, SL 1-1-3 SSSS81
C409	87-A10-827-080		C-CAP, U 0.47-6.3 K B				

REF. NO.	PART NO.	KANRI NO.	DESCRIPTION
VR701	87-A91-145-080		C-VR,RTRY 30KCX2 H RK14J12R
X401	87-A70-201-080		C-VIB,CER 16.93MHZ CSTCV-MXJ0C

JACK C.B

C102	87-010-060-010	CAP,E 100-16V
C103	87-012-286-080	CAP, U 0.01-25
C104	87-015-677-010	CAP,E 100-6.3V
C105	87-012-286-080	CAP, U 0.01-25
CN101	8A-HC4-633-010	CONN ASSY,7P V 1.5MM
J101	87-A60-421-010	JACK,DC HEC3600 BLK 6
S101	87-A91-622-010	SW,MICRO PV1102

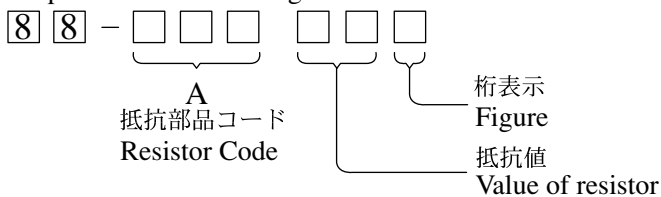
LID C.B

C801	87-016-558-080	C-CAP,TN 47-6.3 F93 B
C802	87-012-274-080	CHIP CAP 1000P
C803	87-010-831-080	C-CAP,U 0.1-16F
C804	87-A10-811-080	C-CAP, 0.1-100 VC30E
D801	87-A91-327-040	C-LED,SEC1703C GRN
D802	87-A91-329-040	C-LED,SECS1803C ORN
D803	87-A91-326-040	C-LED,SEC1603C RED
L801	87-005-843-080	C-COIL,470UH K LQH3C
LCD801	8A-HC4-621-010	LCD,AHC-4 TRANSPAREN
S801	87-A90-232-080	C-SW,TACT SKQRAA
S802	87-A90-232-080	C-SW,TACT SKQRAA
S803	87-A90-232-080	C-SW,TACT SKQRAA
S804	87-A90-232-080	C-SW,TACT SKQRAA
S805	87-A90-232-080	C-SW,TACT SKQRAA
S806	87-A90-232-080	C-SW,TACT SKQRAA
S807	87-A90-232-080	C-SW,TACT SKQRAA

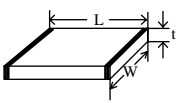
チップ抵抗部品コード／CHIP RESISTOR PART CODE

チップ抵抗部品コードの成り立ち

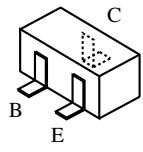
Chip Resistor Part Coding



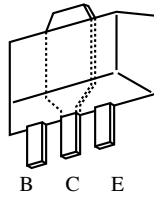
チップ抵抗 Chip resistor

容量 Wattage	種類 Type	許容誤差 Tolerance	記号 Symbol	寸法／Dimensions (mm)				抵抗コード Resistor Code : A
				外形／Form	L	W	t	
1/16W	1005	± 5%	CJ		1.0	0.5	0.35	104
1/16W	1608	± 5%	CJ		1.6	0.8	0.45	108
1/10W	2125	± 5%	CJ		2	1.25	0.45	118
1/8W	3216	± 5%	CJ		3.2	1.6	0.55	128

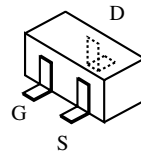
TRANSISTOR ILLUSTRATION



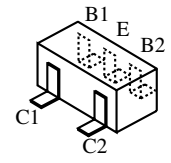
2SA1235
2SC3052
DTA114TKA
DTC114TK
DTC114TU
DTC123JK



2SA1369
2SB1132
2SD1664

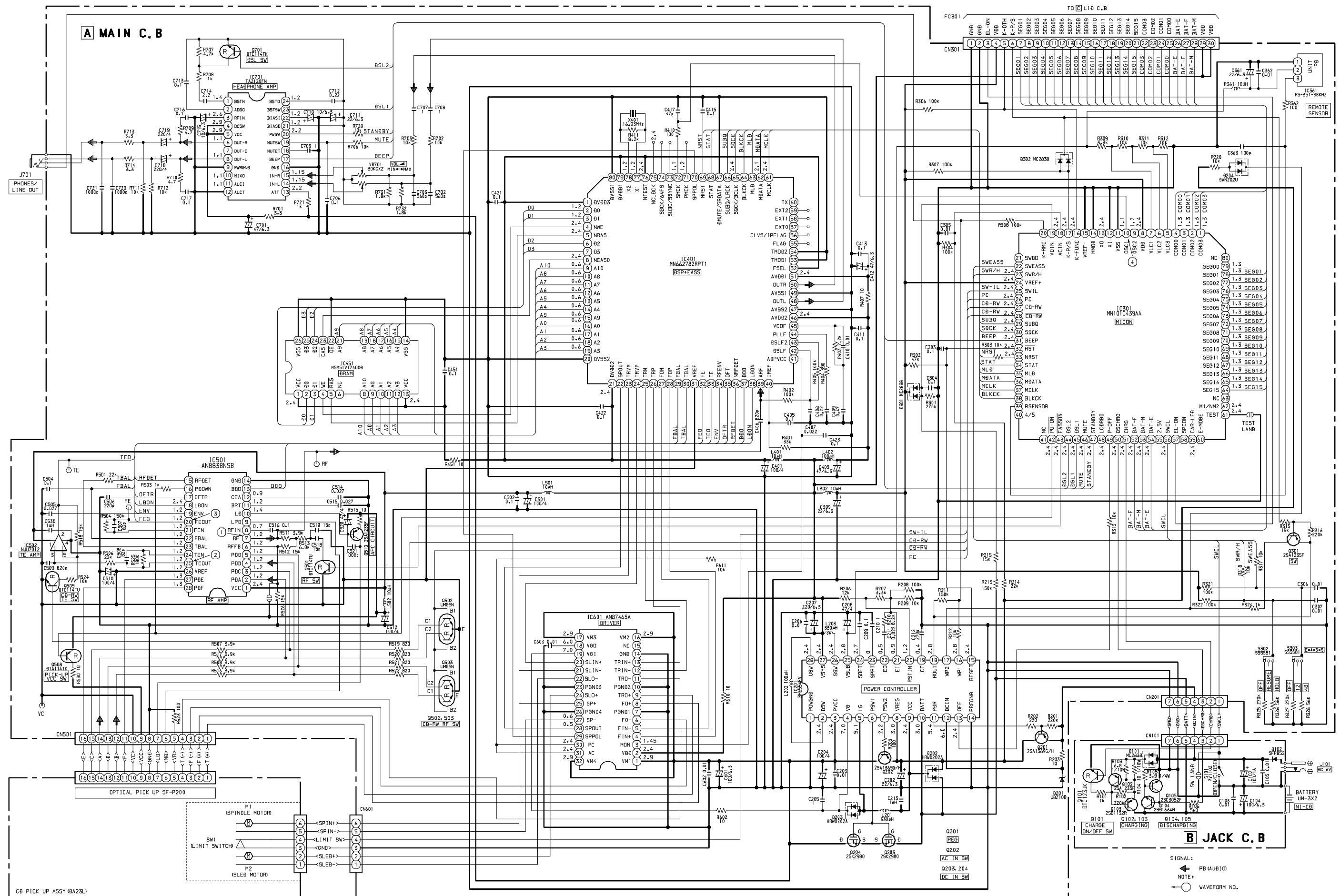


2SK2980

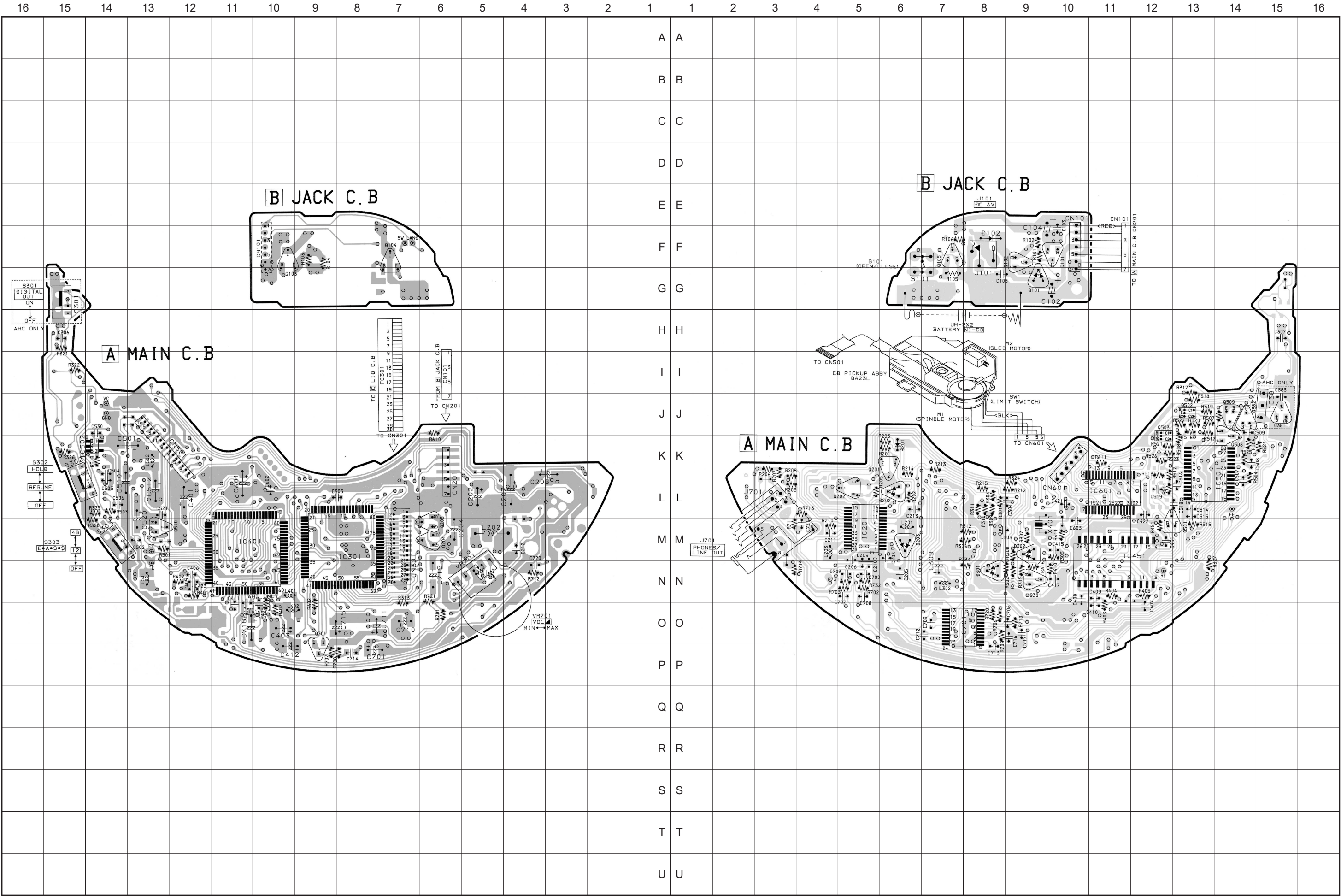


UMG5N

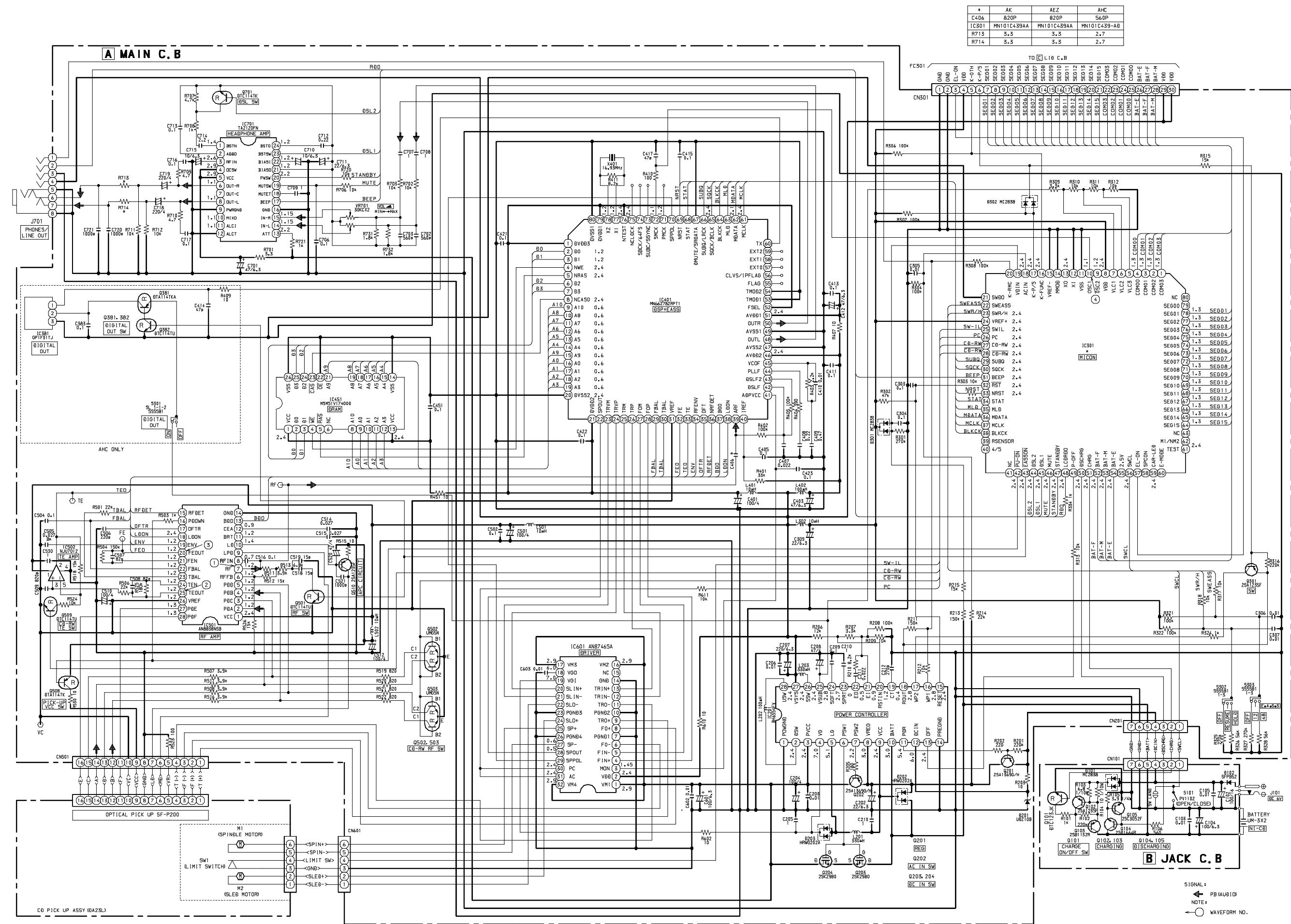
SCHEMATIC DIAGRAM - 1 (MAIN / JACK) <XP-V716C>



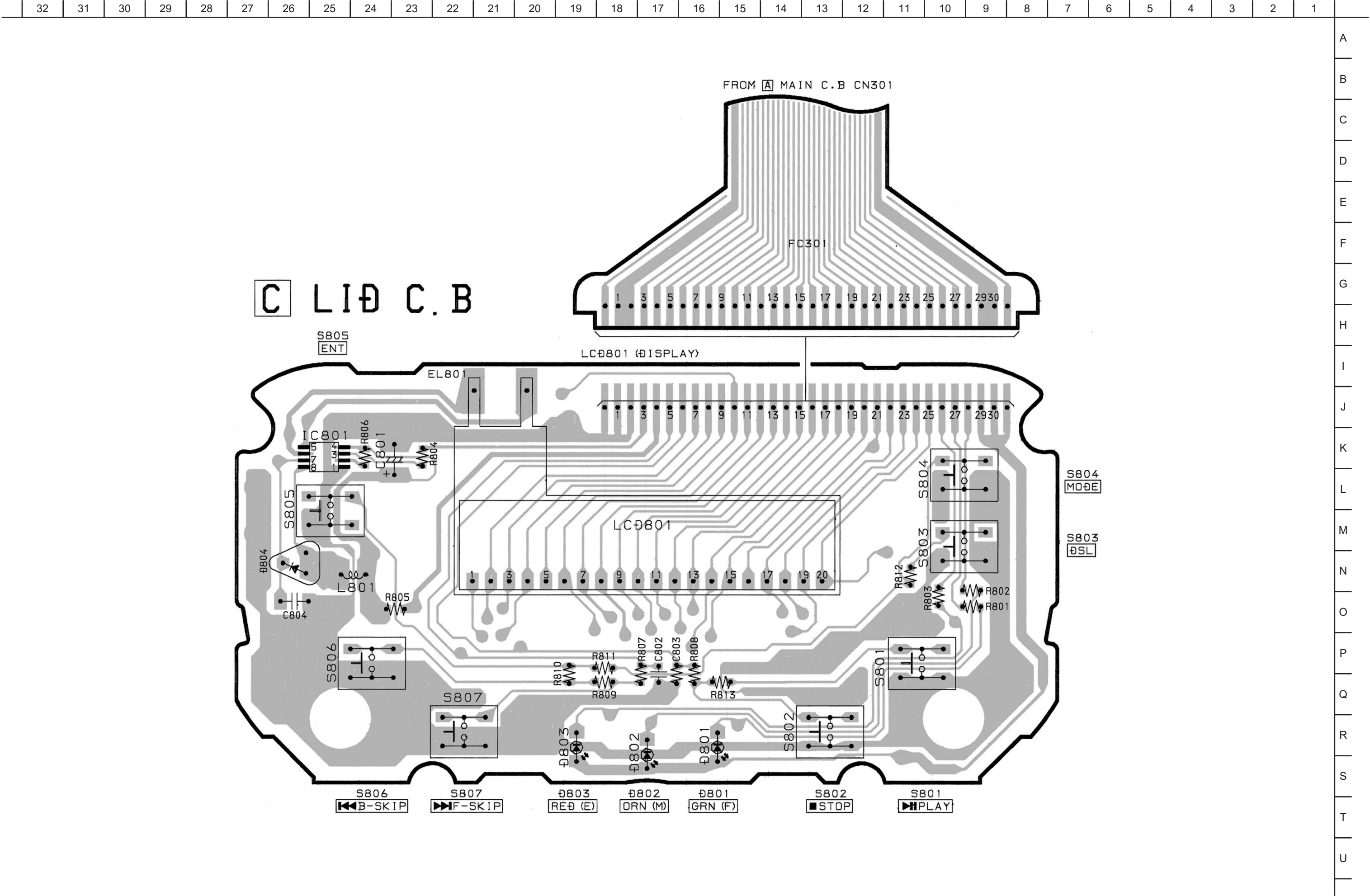
WIRING - 2 (MAIN / JACK) <XP-V714>



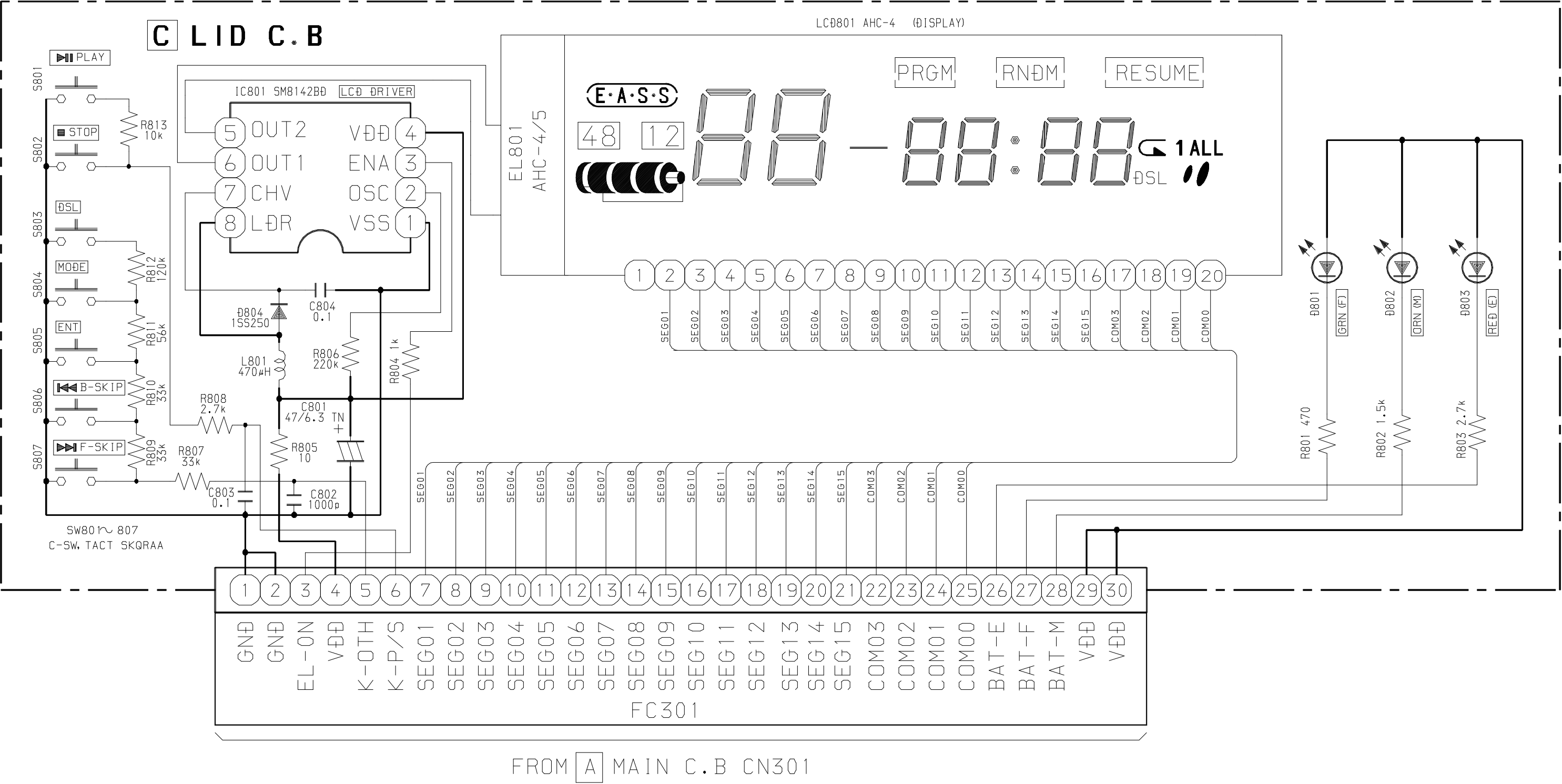
SCHEMATIC DIAGRAM - 2 (MAIN / JACK) <XP-V714>



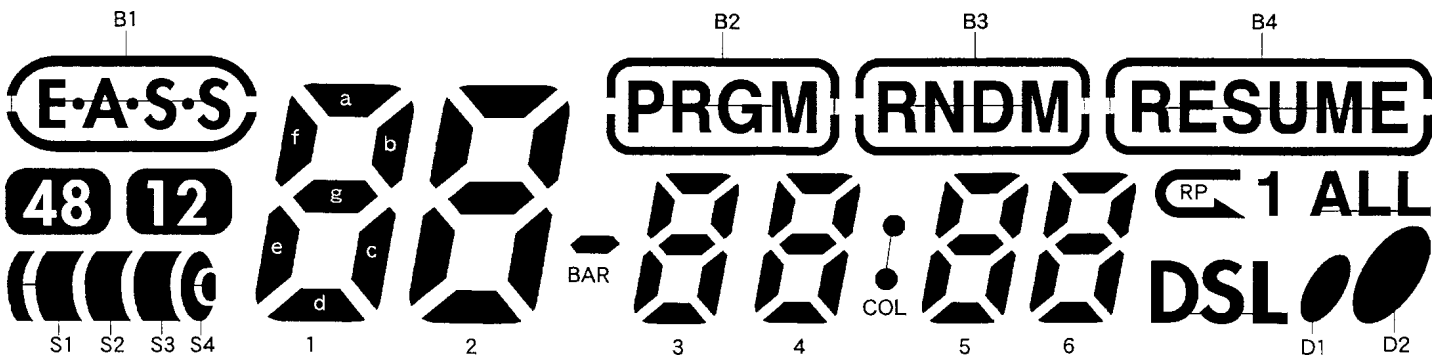
	AK	AEZ	AHC
C406	B20P	B20P	560P
IC501	MN101C439AA	MN101C439AA	MN101C439-AB
R713	5.3	3.3	2.7
R714	5.3	3.3	2.7



SCHEMATIC DIAGRAM -3 (LID)



LCD DISPLAY

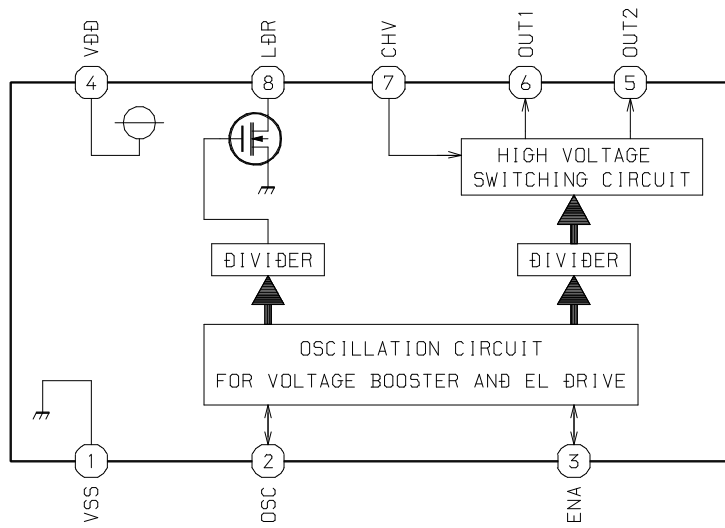


No	1	2	3	4	5	6	7	8	9	10
COM0	S2	B1	RNDM	1a	PRGM	2a	BAR	3a	B2	4a
COM1	S1	E·A·S·S	1f	1b	2f	2b	3f	3b	4f	4b
COM2	S3	48	1e	1g	2e	2g	3e	3g	4e	4g
COM3	S4	12	1d	1c	2d	2c	3d	3c	4d	4c

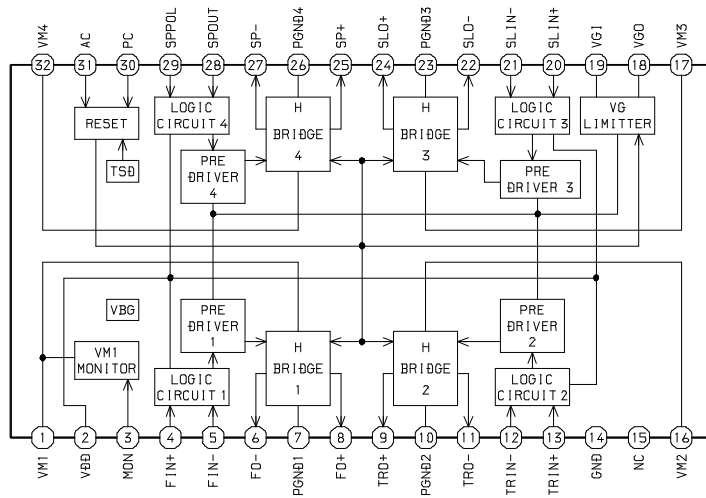
No	11	12	13	14	15	16	17	18	19	20
COM0	COL	5a	B3	6a	B4	RESUME	---	---	---	COM0
COM1	5f	5b	6f	6b	1	ALL	---	---	COM1	---
COM2	5e	5g	6e	6g	RP	D2	---	COM2	---	---
COM3	5d	5c	6d	6c	DSL	D1	COM3	---	---	---

IC BLOCK DIAGRAM

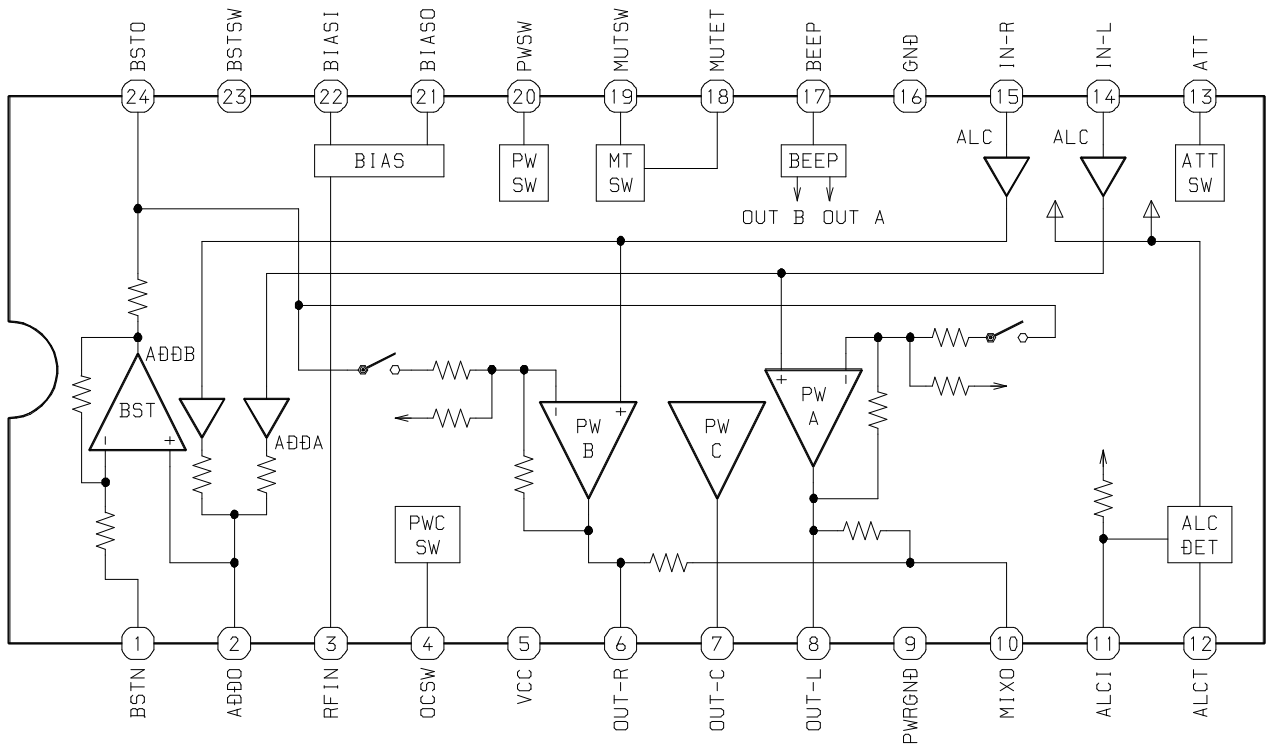
IC,SM8142BD



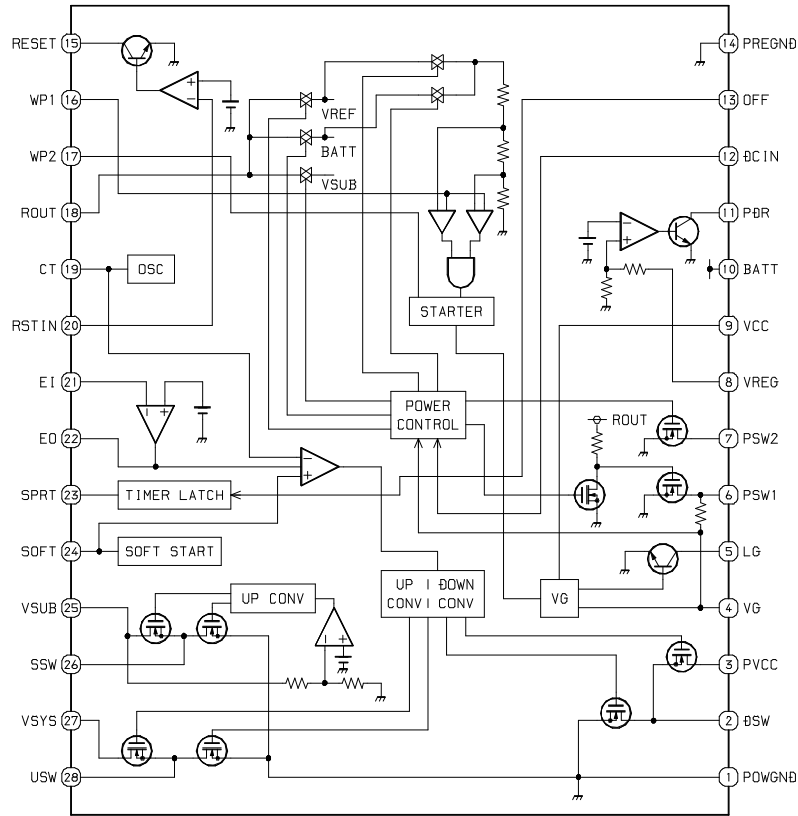
IC,AN8746SA



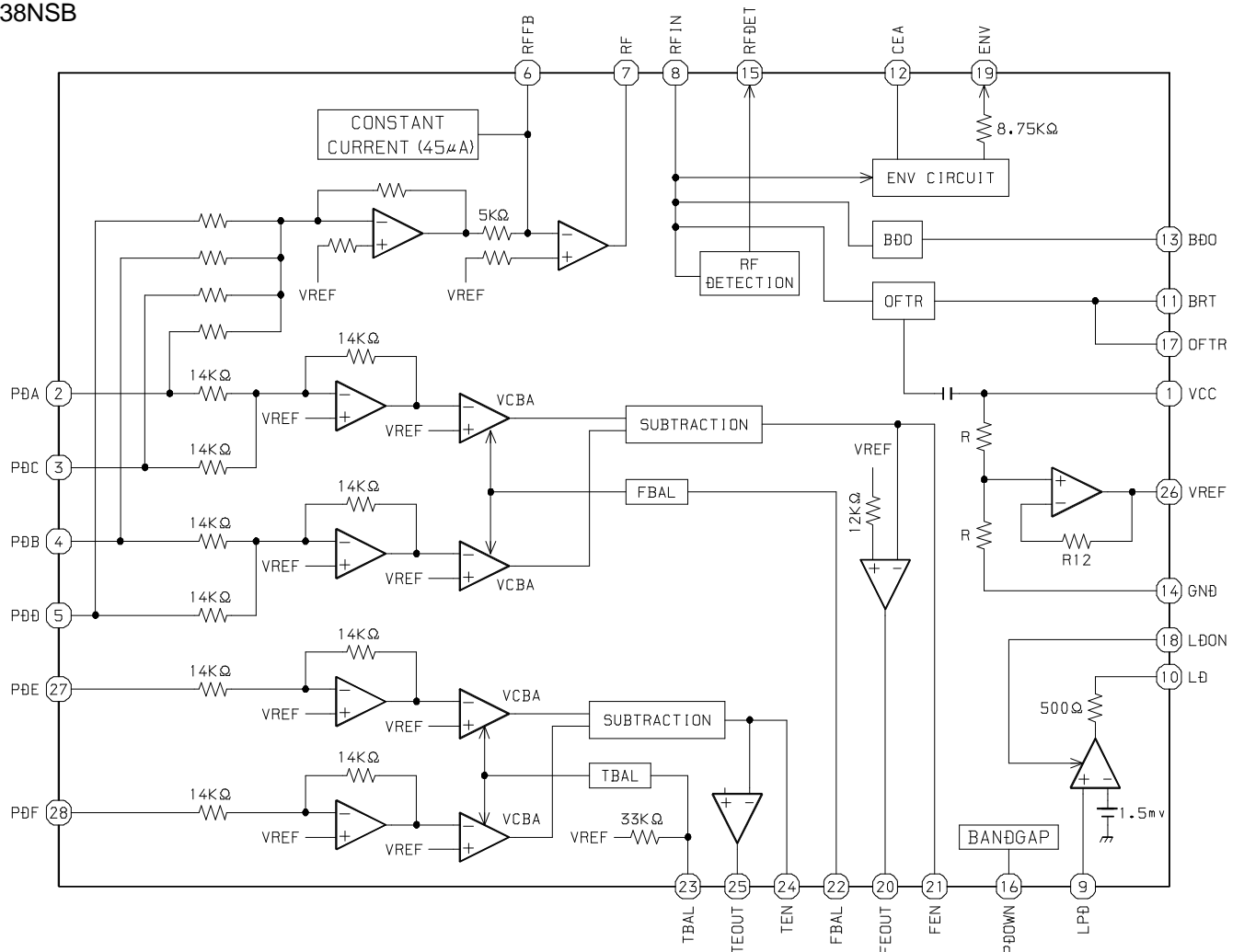
IC,TA2120FN



IC,BH6554FV

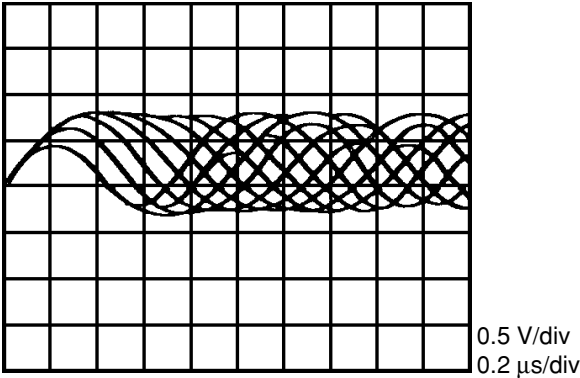


IC,AN8838NSB

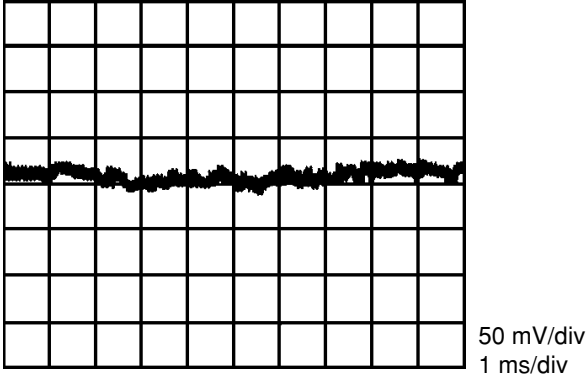


WAVEFORM

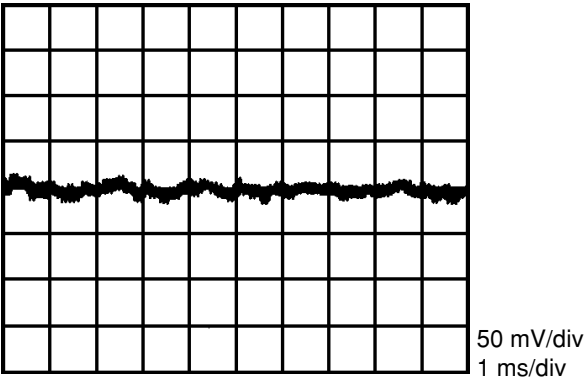
① IC501 PIN 7 (RF)



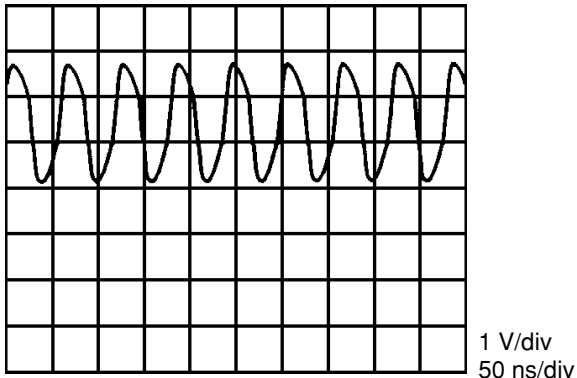
③ IC501 PIN 20 (FEOUT)



② IC501 PIN 25 (TEOUT)



④ IC301 PIN 10 (OSC1)



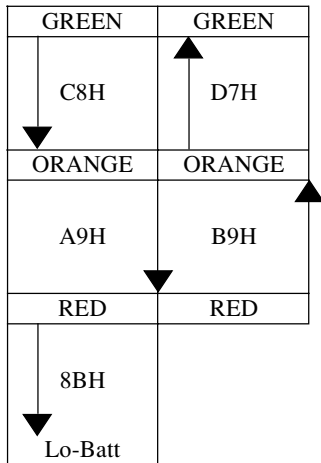
IC DESCRIPTION

IC, MN101C439AA / IC, MN101C439-AD

Pin No.	Pin Name	I/O	Description
1	COM03	O	LCD common output.
2	COM02	O	LCD common output.
3	COM01	O	LCD common output.
4	COM00	O	LCD common output.
5	VLC3	-	LCD drive voltage setting terminal.
6	VLC2	-	LCD drive voltage setting terminal.
7	VLC1	-	LCD drive voltage setting terminal.
8	VDD	-	LCD power.
9	OSC2	O	Micon main clock oscillator output (not used).
10	OSC1	O	Micon main clock oscillator output.
11	VSS	-	GND.
12	XI	I	Sub clock oscillator (connected to GND).
13	XO	O	Sub clock oscillator (not used).
14	MMOD	I	Processor mode unused (connected to GND).
15	VREF-	-	Connected to GND.
16	K-FUNC	I	"FUNCTION" key input.
17	K-P/S	I	"PLAY" and "STOP" key inputs.
18	ACIN	I	AC adaptor detection.
19	VDIN	I	Main clock (8 MHz).
20	K-RMC	I	Wired remote control input.
21	SWDO	I	Digital out "ON/OFF" input. ON at "L" (connected to GND).
22	SWEASS	I	EASS mode selection input. Refer to A/D table.
23	SWR/H	I	RESUME/HOLD switch input.
24	VREF+	-	Connected to VDD.
25	SWIL	I	Limited SW input.
26	PC	O	Power off output for CD serve driver. Power off at "L".
27	CD-RW	O	CD-RW PLAY gain level selection output. Gain set at "H".
28	$\overline{\text{CD-RW}}$	O	CD-RW PLAY gain level selection output. Gain set at "L".
29	SUBQ	O	Power down output for H/A.
30	SQCK	O	Selection output for EASS gain control. EASS at "L".
31	BEEP	O	Buzzer output for headphone.
32	$\overline{\text{RST}}$	I	Micro computer RESET input.
33	NRST	O	DSP RESET output.
34	STAT	I	DSP STAT input.
35	MLD	O	DSP MLD output.
36	MDATA	O	DSP MDATA output.
37	MCLK	O	DSP MCLK output.
38	BLKCK	I	DSP BLKCK input.
39	RSensor	I	Wireless remote control sensor signal input.
40	4/5	I	XP-V7xx or XP-V5xx selection input. XP-V7xx at "H", XP-V5xx at "L" (not used).
41	NC	-	Not connected.
42	$\overline{\text{PU-ON}}$	O	H/A power down output.

Pin No.	Pin Name	I/O	Description
43	EASSON	O	EASS gain up selection output. EASS ON at "L".
44	DSL2	O	Headphone DSL2 control output. DSL2 at "H". DSL1/OFF at "L".
45	DSL1	O	Headphone DSL ON control output. DSL ON at "H".
46	MUTE	O	Audio mute output.
47	STANDBY	O	Headphone standby output. Standby at "L". Power ON at "H".
48	LCDRDO	O	Wired LCD remote control output.
49	P-OFF	O	Power IC power off output. Power OFF at "L".
50	DSCHRG	O	Discharge output.
51	CHRG	O	Charge output.
52	BAT-F	O	Battery balance indication FULL INDICATION LED output. LED ON at "L".
53	BAT-M	O	Battery balance indication MEDIUM INDICATION LED output. LED ON at "L".
54	BAT-E	O	Battery balance indication EMPTY INDICATION LED output. LED ON at "L".
55	2.5V	-	Not used.
56	SWCL	I	Cover OPEN/CLOSE detection switch input .
57	EL-ON	O	EL back light control output.
58	SPCON	O	Spindle PWM control output (not used).
59	CAR-LED	O	CAR-KIT model button LED light output (not used).
60	E-MODE	I	Shaft damage mode (No shaft damage mode found at "H") (not used).
61	TEST	I	Enter test mode at "L" (not used).
62	M1/NM2	I	10 or 10/40 sec selection input for XP-V5xx. 10 sec at "H", 10/40 sec at "L". (not used)
63	NC	-	Not connected.
64	SEG15	O	LCD segment output.
65	SEG14	O	LCD segment output.
66	SEG13	O	LCD segment output.
67	SEG12	O	LCD segment output.
68	SEG11	O	LCD segment output.
69	SEG10	O	LCD segment output.
70	SEG09	O	LCD segment output.
71	SEG08	O	LCD segment output.
72	SEG07	O	LCD segment output.
73	SEG06	O	LCD segment output.
74	SEG05	O	LCD segment output.
75	SEG04	O	LCD segment output.
76	SEG03	O	LCD segment output.
77	SEG02	O	LCD segment output.
78	SEG01	O	LCD segment output.
79	SEG00	O	LCD segment output (not used).
80	NC	-	Not connected.

BATTERY INDICATION



A/D TABLE

HEX	K-FUNC (PIN 16)	SWEASS (PIN 22)	SWR/H (PIN 23)	K-P/S (PIN 17)
E8 ~ FF	OFF	EASS 10	RESUME	OFF
CB ~ E8	NOT USED	OFF	OFF	PLAY
AD ~ CA	DSL	OFF	OFF	PLAY
90 ~ AC	MODE	OFF	OFF	PLAY
71 ~ 8F	ENTER	EASS 40	HOLD/RESUME	PLAY
53 ~ 70	B.S	EASS 40	HOLD/RESUME	STOP
35 ~ 52	F.S	EASS 40	HOLD/RESUME	STOP
17 ~ 34	NOT USED	OFF	OFF	STOP
1 ~ 16	OFF	OFF	OFF	OFF

A/D TABLE

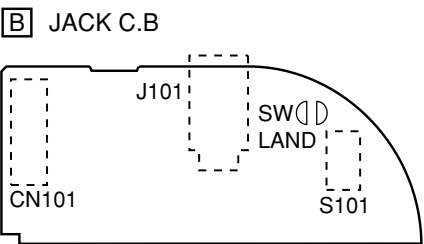
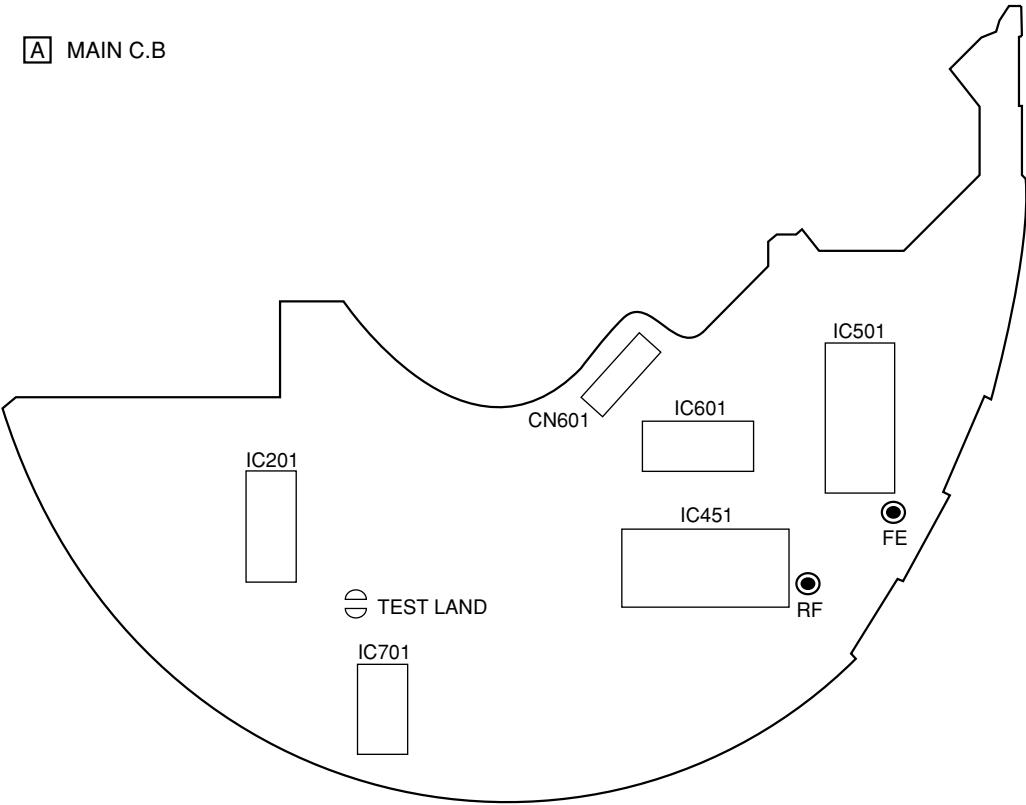
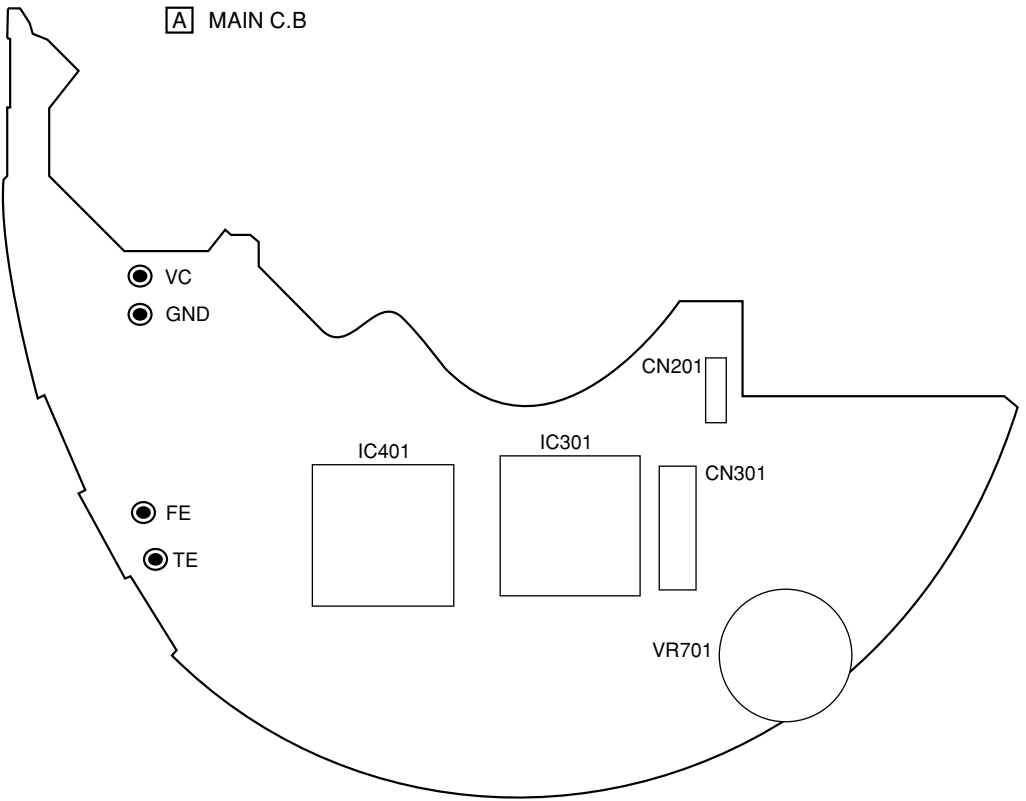
HEX	K-RMC (PIN 20)
E8 ~ FF	OFF
BB ~ E8	NOT USED
89 ~ BA	DSL
5F ~ 88	PLAY
42 ~ 5E	MODE
2E ~ 41	STOP
1F ~ 2D	B.S
0B ~ 1E	F.S
00 ~ 0A	OFF

IC, MN662782RPT1

Pin No.	Pin Name	I/O	Description
1	DVDD3	-	Power supply for DRAM interface.
2	D0	I/O	Input/Output data 0 for DRAM.
3	D1	I/O	Input/Output data 1 for DRAM.
4	NWE	O	Output write enable signal for DRAM.
5	NRAS	O	Output RAS control signal for DRAM.
6	D2	I/O	Input/Output data 2 for DRAM.
7	D3	I/O	Input/Output data 3 for DRAM.
8	NCAS0	O	Output CAS control signal 0 for DRAM.
9	A10	O	Output address signal 10.
10 ~ 14	A8 ~ A4	O	Output address signal 8 ~ 4.
15	A9	O	Output address signal 9.
16 ~ 19	A0 ~ A3	O	Output address signal 0 ~ 3.
20	DVSS2	-	Ground for digital circuit.
21	DVDD2	-	Power supply for digital circuit.
22	SPOUT	O	PWM output of spindle.
23	TRVM	O	PWM output of negative traverse signal.
24	TRVP	O	PWM output of positive traverse signal.
25	TRM	O	PWM output of negative tracking signal.
26	TRP	O	PWM output of positive tracking signal.
27	FOM	O	PWM output of negative focus signal.
28	FOP	O	PWM output of positive focus signal.
29	FBAL	O	Output for focus balance adjustment.
30	TBAL	O	Output for tracking balance adjustment.
31	VREF	-	Reference voltage for DA output (TRVP, TRP, FOM, FOP, FBAL, TBAL, DSLF2).
32	FE	I	Focus error signal input (analog input).
33	TE	I	Tracking error signal input (analog input).
34	RFENV	I	RF envelope signal input (analog input).
35	OFT	I	Off track signal input. "H" : Off track.
36	NRFDET	I	RF detection signal input. "L" : Detect.
37	BDO	I	Drop out signal input. "H" : Drop out.
38	LDON	O	Laser ON signal output. "H" : ON.
39	ARF	I	RF signal input.
40	IREF	I	Reference current input terminal.
41	ADPVCC	-	Reference voltage level for PWM output drive.
42	DSLF	O	Loop filter terminal for DSL.
43	DSLF2	O	DSL unbalance current.
44	PLL	O	Loop filter terminal for PLL.
45	VCOF	O	Loop filter terminal for pitch controller and jitter free VCO.
46	AVDD2	-	Power supply for analog circuit (DSL, PLL, VCOF, AD, DA).
47	AVSS2	-	Ground for analog circuit (DSL, PLL, VCOF, AD, DA).
48	OUTL	O	Output Lch audio.
49	AVSS1	-	Ground for analog circuit (for audio output).

Pin No.	Pin Name	I/O	Description
50	OUTR	O	Output Rch audio.
51	AVDD1	-	Power supply for analog circuit (for audio output).
52	FSEL	I	Input noise filter ON / OFF switching. "L" : ON. "H" : OFF.
53	TMOD1	I	Terminal mode switching input 1 (connected to GND).
54	TMOD2	I	Terminal mode switching input 2 (connected to GND).
55	FLAG	O	Flag signal output (not used).
56	CLVS/IPFLAG	-	Not used.
57 ~ 59	EXT 0 ~ 2	I/O	Expansion input / output port 0 ~ 2 (not used).
60	TX	O	Digital audio interface output signal.
61	MCLK	I	Microcomputer command clock signal input (latch data at rising edge).
62	MDATA	I	Microcomputer command data signal input.
63	MLD	I	Microcomputer command load signal input. "L" : Load.
64	BLKCK	I	Input sub code block clock signal (fBLKCK = 75kHz) / Input SYNC signal for CDTEXT (fDQSY = 300kHz).
65	SQCK/BCLK	I	Input clock for sub code Q register.
66	SUBQ/LRCK	O	Output sub code Q data.
67	DMUTE/SRDATA	I	Input mute. "H" : Mute (connected to GND).
68	STAT	O	Output status signal (CRC,RESY,CLVS,NTTSTOP,SQOK,FLAG6,SENSE,NFLOCK, NTLOCK,BSEL,SUBQDATA,CDTEXT DATA,ANT-SHOCK READ OUT DATA.)
69	NRST	I	Input reset. "L" : Reset.
70	SPPOL	O	PWM output of spindle signal drive.
71	PMCK	O	88.2kHz clock signal output (not used).
72	SMCK	O	4.2336MHz clock signal output.
73	SUBC/SSYNC	O	Output sub code serial (not used).
74	SBCK/64FS	I	Input clock for subcode serial (not used).
75	NCLDCK	O	Sub code frame clock signal output (fCLDCK = 7.35kHz). (Not used)
76	NTEST	-	Test terminal (connected to power supply).
77	X1	I	Crystal oscillator circuit input terminal (f = 16.93MHz).
78	X2	O	Crystal oscillator circuit output terminal (f = 16.93MHz).
79	DVDD1	-	Power supply for digital circuit.
80	DVSS1	-	Ground for digital circuit.

TEST MODE



The servo circuit of this model is designed to be adjustment-free and the adjustment value and disc distinction (CA-DA, CD-R and CD-RW etc.) is adjusted by within the IC. Therefore the adjustment is performed by each TOC reading. The adjustment conditions within the IC of each servo can be monitored in this test mode.

1. How to start the Test Mode

Starting method of the test mode differ depending upon the type of disc being used. This is because the adjustment values of each servo also differ depending upon the type of disc.

When using the CD-DA or CD-R

- 1) Short-circuit the test land and the OPEN/CLOSE SW land.
- 2) Insert the AC plug and install the CD-DA or CD-R disc.
- 3) Press the PLAY and STOP buttons in this sequence and read the TOC.
- 4) Press the DISPLAY/ENTER button and confirm that all LCD light up.

When using the CD-RW

- 1) Short-circuit the test land and the OPEN/CLOSE SW land.
- 2) Insert the AC plug and install the CD-RW disc.
- 3) Press the PLAY, STOP and DSL buttons in this sequence and read the TOC. The LCD display should display CD-r at this point.
- 4) Press the DISPLAY/ENTER button and confirm that all LCD light up.

Note 1) If the TOC cannot be read, press the DISPLAY/ENTER button once “Err” has appeared on the LCD, causing all the LCDs to become lit up. The following steps 2 and 3 can be confirmed even if the TOC cannot be read.

Note 2) By repeatedly pressing the DISPLAY/ENTER button, all LCD will light up and the TOC display will be repeated.

Note 3) By repeatedly pressing the DSL button, the “CD-d” and “CD-r” displays will be repeated.

When the LCD displays “CD-d,” → CD-DA, CD-R is selected.

When the LCD displays “CD-r,” → CD-RW is selected.

Note 4) The test mode is cancelled by disconnecting the AC plug and removing the soldering of short land.

2. DISC distinction (confirmation of FE waveform)

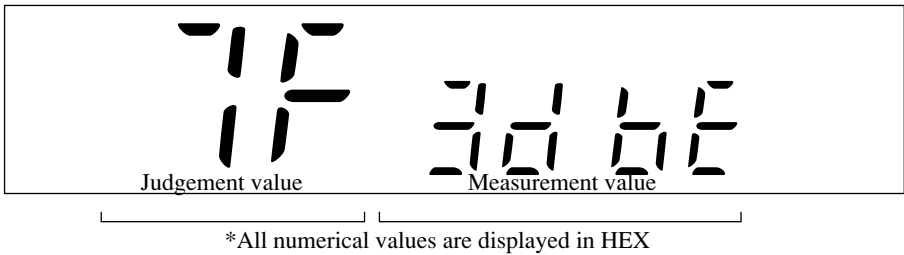
This mode is possible to perform a confirmation of the disc distinction.

Confirmation method

- 1) Press the DSL button and select “CD-d” or “CD-r” (Refer to Note 3).
- 2) Install the disc.
- 3) Press the MODE button.

The LCD will change as follows.

Example: Test disc: TCD-782, DISC type select: CD-d, Judgement value: 7F, Measurement value: 3D BE.



What disc the IC has selected can be understood according to this judgment value.
The decision standard of IC is as follow.

	LCD displays “CD-d”	LCD displays “CD-r”
0 < Judgment value < 10	No disc	No disc
10 < Judgment value < 32	CD-RW	No disc
32 < Judgment value < C8	CD-DA and CD-R	CD-RW
C8 < Judgment value		CD-DA and CD-R

The state of the FE waveform can also be understood from this judgment value.

3. Confirmation of sled movement

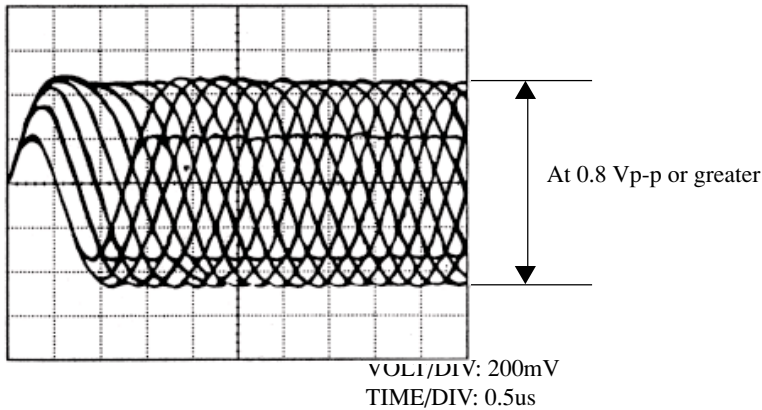
By pressing the F. SKIP or B. SKIP button continuously when all LCD light up, it is possible to transfer the pick-up to either the outer circumference or the inner circumference (the LCD is to remain all light up).

4. Confirmation of the RF level

Test point: RF and VC (Vref)

Test disc: TCD-782

Confirm that the RF waveform appears as shown below.

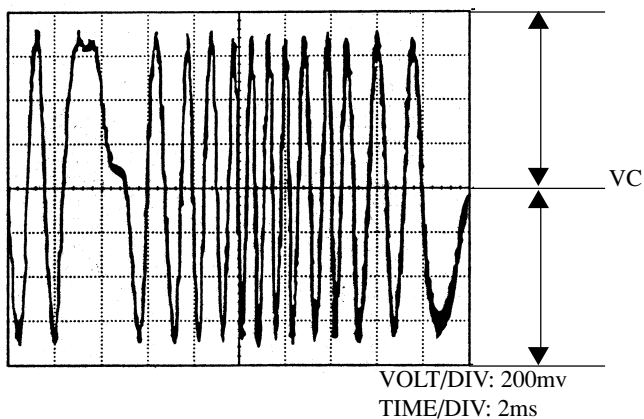


5. Confirmation of tracking balance

Test point: TE and VC (Vref)

Test disc: TCD-782

Press the DSL button while the test disc is playing and confirm that the traverse waveform is as is shown below.

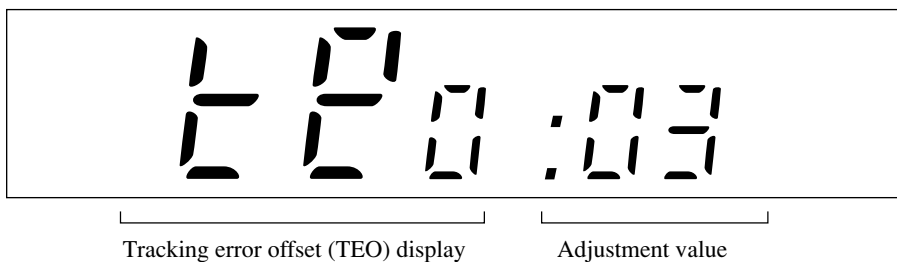


6. Confirmation of each servo

It is possible to confirm the adjustment value of each servo by repeatedly pressing the MODE button while the test disc is playing. The switchover sequence is as stated below.

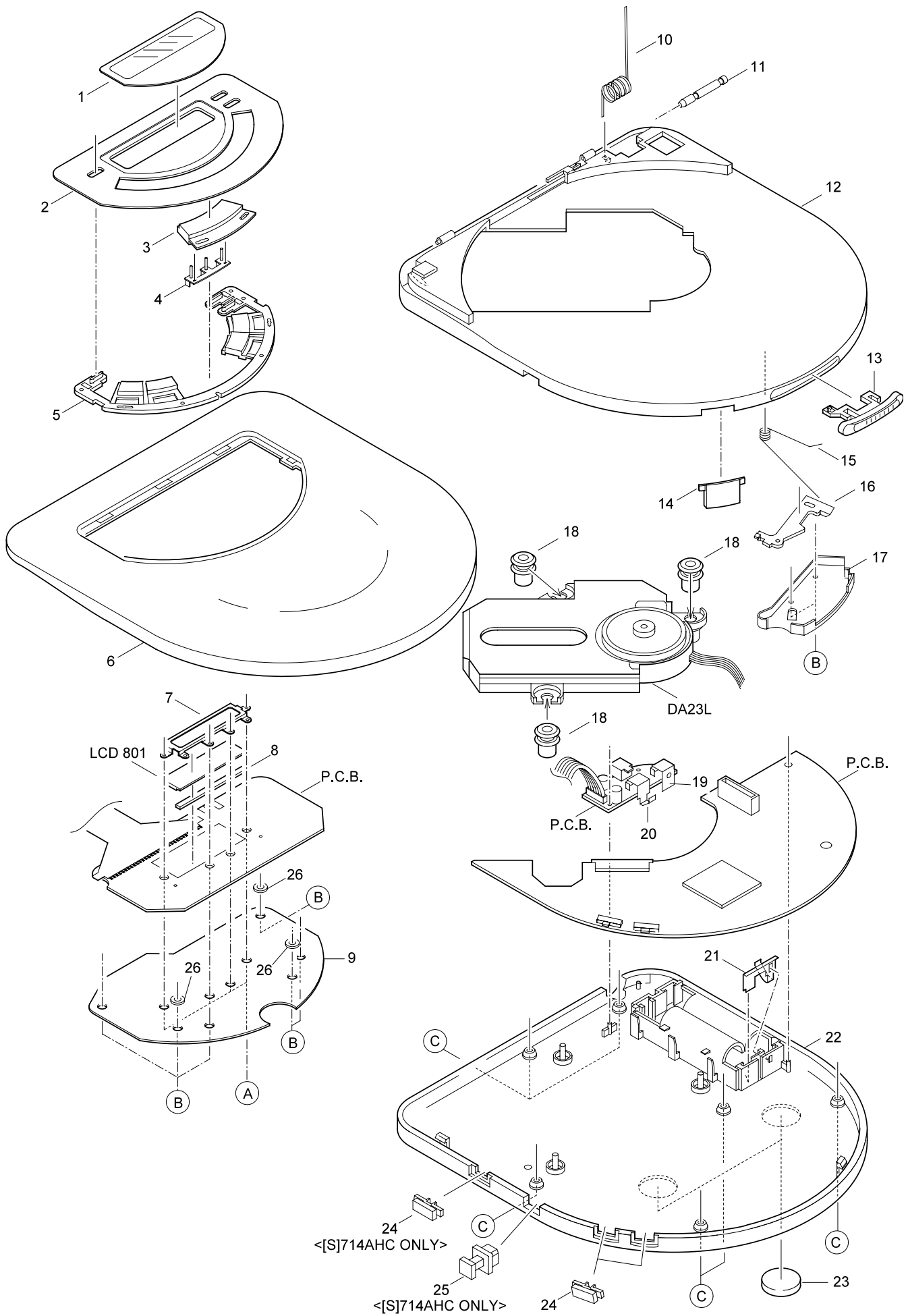
Confirmation mode OFF -> Focus bias (FB) -> Tracking balance (TB) -> Tracking gain (TG) -> Tracking error offset (TEO) -> Focus gain (FG) -> Focus error offset (FEO) -> Confirmation mode OFF

Example: Tracking error offset (TEO) Adjustment value-> 03



*Adjustment values are displayed in HEX.

MECHANICAL EXPLODED VIEW 1 / 1



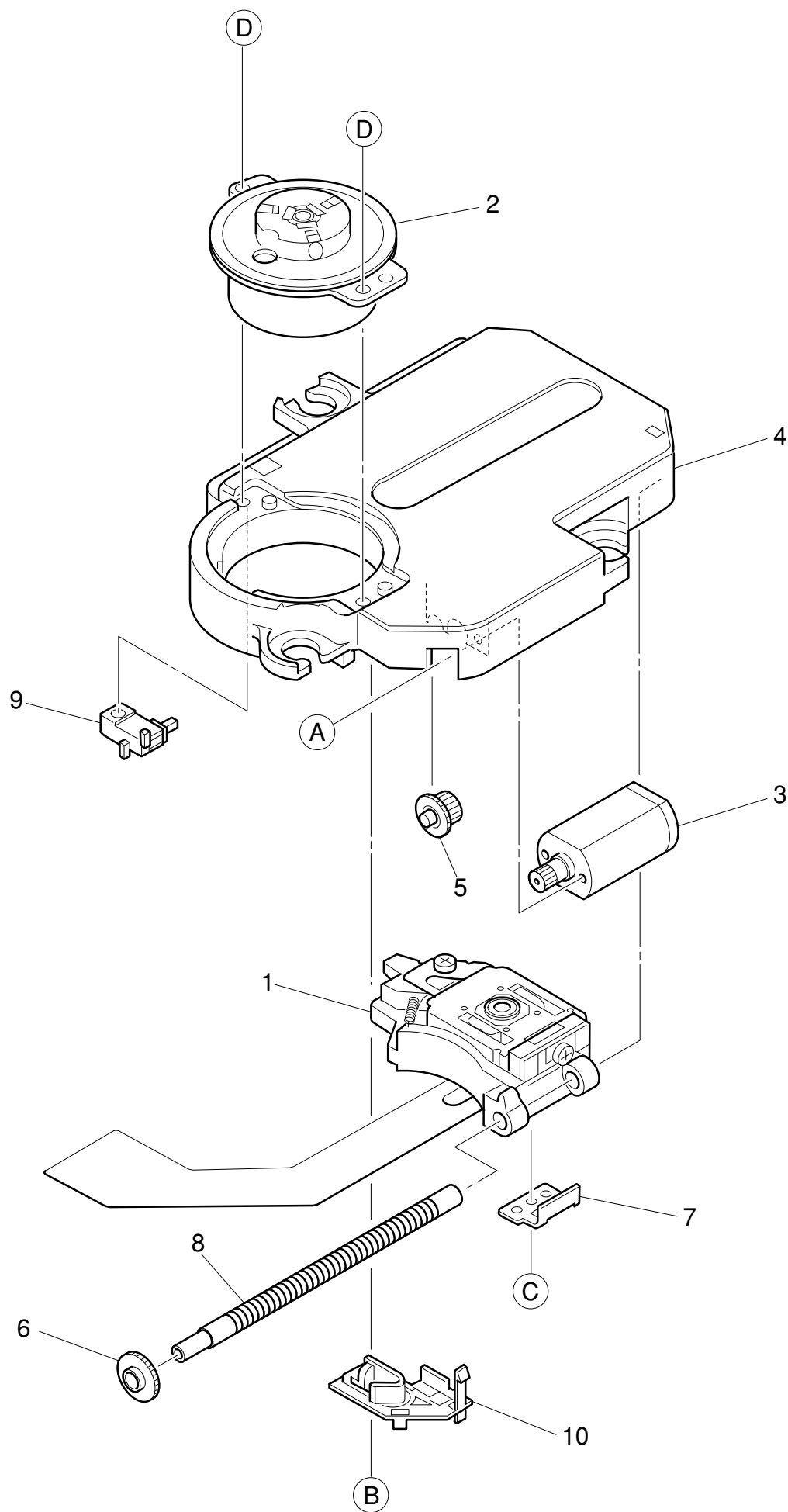
MECHANICAL EXPLODED PARTS LIST 1 / 1

REF. NO.	PART NO.	KANRI NO.	DESCRIPTION
1	8A-HC4-010-010		SH,DISPLAY (4) <[S] 716C>
1	8A-HC4-028-010		SH,DISPLAY EZ (V714) <EXCEPT [S] 716C>
2	8A-HC4-016-210		PANEL, CD (4)
3	8A-HC4-007-110		PANEL, LED
4	8A-HC4-005-010		LENS, LED
5	8A-HC4-006-110		KEY, PLAY (4)
6	8A-HC4-001-110		LID, CD (4) <[S] 716C, [S] 714AHC>
6	8A-HC4-020-010		LID, CD GOLD (4) <[N] 714AK, [N] 714AEZ>
7	8A-HC4-208-010		PLATE, LCD
8	8Z-HC4-201-010		JOINT, LCD ZHC-4
9	8A-HC4-011-010		HLDR, LID CD (4)
10	8A-HC4-204-110		SPR-T, LID
11	85-HC6-205-110		SHAFT, LID (300) HK
12	8A-HC4-002-110		CABI, CENTER (4) <[S] 716C>
12	8A-HC4-044-010		CABI, CENTER GOLD (V714) <[N] 714AK, [N] 714AEZ>
12	8A-HC4-030-010		CABI, CENTER HR (V714) <[S] 714AHC>
13	8A-HC4-008-110		KNOB, SL OPEN
14	8A-HC4-014-010		WINDOW, SENSOR <[S] 716C>
15	8A-HC4-205-010		SPR-T, KNOB
16	8A-HC4-206-110		LEVER, OPEN
17	8A-HC4-207-010		HLDR, OPEN
18	8Z-HC1-225-010		DMPR, MECHA (SP)
19	8A-HC4-202-010		BAT-CONTACT, (+)
20	8A-HC4-201-110		BAT-CONTACT, (-)
21	8A-HC4-203-110		BAT-CONTACT, (+-)
22	8A-HC4-013-110		CABI, BOTTOM ASSY (4) <[S] 716C>
22	8A-HC4-027-010		CABI, BOTTOM ASSY EZ (V714) <[N] 714AK, [N] 714AEZ>
22	8A-HC4-032-110		CABI, BOTTOM ASSY HR (V714) <[S] 714AHC>
23	88-HC6-021-010		FOOT, DIA10
24	8A-HC4-009-010		KNOB, SL HOLD
25	87-HC4-014-010		COVER, OPT <[S] 714AHC>
26	8A-HM1-599-010		W, 1.7-3.6-0.23 W/ADH
A	87-067-736-010		SCREW, 1.4-2 BLK NLOCK
B	87-067-732-010		TAPPING SCREW, VT1.4-3
C	87-067-869-010		V+1.7-8 HL BLK

COLOR NAME TABLE

Basic color symbol	Color	Basic color symbol	Color	Basic color symbol	Color
B	Black	C	Cream	D	Orange
G	Green	H	Gray	L	Blue
LT	Transparent Blue	N	Gold	P	Pink
R	Red	S	Silver	ST	Titan Silver
T	Brown	V	Violet	W	White
WT	Transparent White	Y	Yellow	YT	Transparent Yellow
LM	Metallic Blue	LL	Light Blue	GT	Transparent Green
LD	Dark Blue	DT	Transparent Orange	GM	Metallic Green
YM	Metallic Yellow	DM	Metallic Orange		




CD MECHANISM EXPLODED VIEW 1 / 1



CD MECHANISM PARTS LIST 1 / 1

REF. NO.	PART NO.	KANRI NO.	DESCRIPTION
1	S0-A41-A20-600		PICKUP LASER ASSY
2	SM-10A-108-001		MOTOR ASSY SPINDLE
3	S0-M10-A10-900		MOTOR SLED ASSY
4	S2-311-A12-200		CHASSIS
5	S2-511-A23-200		GEAR MIDDLE
6	S2-511-A23-100		GEAR, SCREW
7	S2-511-A23-400		GEAR, RACK
8	S2-511-A07-900		SPINDLE SCREW
9	S4-S13-A00-200		SW, LEAF
10	S2-451-A18-100		HOLDER GEAR
A	SS-EXE-A04-000		SCR PAN PCS 1.4-2.2
B	SS-GXE-A00-300		SPECIAL SCREW
C	SS-EXE-A14-100		SPECIAL SCREW
D	SS-GXE-A00-202		SPECIAL SCREW M1.7-4.0

ACCESSORIES / PACKAGE LIST

REF. NO.	PART NO.	KANRI NO.	DESCRIPTION
1	8A-HC4-902-110		IB, HC (ECC) - IN <714AHC>
1	8A-HC4-904-010		IB, EZ (EGF) - IN <714AEZ, 714AK>
1	8A-HC4-916-010		IB, Y (EGF) - IN <716CY>
	2	87-B30-283-010	AC ADAPTOR, AC-D603ENC <714AEZ>
	2	87-B30-284-010	AC ADAPTOR, AC-D603KNC <714AK>
	2	87-B30-286-010	AC ADAPTOR, AC-D603HCNC <714AHC>
3	87-B30-328-010		HEADPHONE, HP-M050 <714AK, 714AEZ, 714AHC>
3	87-B30-265-010		HEADPHONE, HP-M043 <716CY>
4	8A-HC4-101-010		RC UNIT, RC-V716C <716CY>
4	8Z-HC4-100-010		RC UNIT, RC-V714 <714AK, 714AEZ, 714AHC>
5	86-YK1-001-210		ADAPTOR, CAP-6 <716CY>
6	86-YK1-002-010		ADAPTOR, DC-602 <716CY>

アイワ株式会社 〒110-8710 東京都台東区池之端1-2-11 ☎03(3827)3111 (代表)
AIWA CO.,LTD. 2-11, IKENOHATA 1-CHOME, TAITO-KU, TOKYO 110, JAPAN TEL:03 (3827) 3111